

A¹ cont.

(ii) at least one pan DR binding peptide selected from the formula
 $R_1-R_2-R_3-R_4-R_5$, wherein:

R_1 is an amino acid followed by alanine or lysine;

R_2 is selected from the group consisting of tyrosine, or phenylalanine;

R_3 is 3 or 4 amino acids, wherein each amino acid is independently selected from the group consisting of alanine, isoleucine, serine, glutamic acid and valine;

R_4 is selected from the group consisting of threonine-leucine-lysine, lysine-threonine, or tryptophan-threonine-leucine-lysine; and,

R_5 consists of 2 to 4 amino acids followed by an amino acid wherein each of the 2 to 4 amino acids is independently selected from the group consisting of alanine, serine, and valine.

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79.

The polynucleotide of claim 78, wherein the polynucleotide is comprised by an expression vector.

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80.

The polynucleotide of claim 78, wherein the fusion protein comprises multiple pan DR peptides.

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81.

The polynucleotide of claim 78, wherein the fusion protein comprises a homopolymer of pan DR peptides.

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82.

The polynucleotide of claim 78, wherein the fusion protein comprises a heteropolymer of pan DR peptides.

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83.

The polynucleotide of claim 78, wherein the immunogenic peptide, native protein fragment or particle comprises a heteropolymer with repeating units.

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84.

The polynucleotide of claim 78, wherein the immunogenic peptide, native protein fragment or particle comprises a T helper peptide.

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85.

The polynucleotide of claim 78, wherein the immunogenic peptide, native protein fragment or particle comprises an antibody-inducing peptide.

Rule 126
Section 1460260

A' cont.

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~~86.~~

~~86.~~ The polynucleotide of claim 78, wherein the immunogenic peptide, native protein fragment or particle comprises a CTL-inducing peptide.

Rule 12b

	1990-1991	1991-1992	1992-1993	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034	2034-2035	2035-2036	2036-2037	2037-2038	2038-2039	2039-2040	2040-2041	2041-2042	2042-2043	2043-2044	2044-2045	2045-2046	2046-2047	2047-2048	2048-2049	2049-2050	2050-2051	2051-2052	2052-2053	2053-2054	2054-2055	2055-2056	2056-2057	2057-2058	2058-2059	2059-2060	2060-2061	2061-2062	2062-2063	2063-2064	2064-2065	2065-2066	2066-2067	2067-2068	2068-2069	2069-2070	2070-2071	2071-2072	2072-2073	2073-2074	2074-2075	2075-2076	2076-2077	2077-2078	2078-2079	2079-2080	2080-2081	2081-2082	2082-2083	2083-2084	2084-2085	2085-2086	2086-2087	2087-2088	2088-2089	2089-2090	2090-2091	2091-2092	2092-2093	2093-2094	2094-2095	2095-2096	2096-2097	2097-2098	2098-2099	2099-2100	2100-2101	2101-2102	2102-2103	2103-2104	2104-2105	2105-2106	2106-2107	2107-2108	2108-2109	2109-2110	2110-2111	2111-2112	2112-2113	2113-2114	2114-2115	2115-2116	2116-2117	2117-2118	2118-2119	2119-2120	2120-2121	2121-2122	2122-2123	2123-2124	2124-2125	2125-2126	2126-2127	2127-2128	2128-2129	2129-2130	2130-2131	2131-2132	2132-2133	2133-2134	2134-2135	2135-2136	2136-2137	2137-2138	2138-2139	2139-2140	2140-2141	2141-2142	2142-2143	2143-2144	2144-2145	2145-2146	2146-2147	2147-2148	2148-2149	2149-2150	2150-2151	2151-2152	2152-2153	2153-2154	2154-2155	2155-2156	2156-2157	2157-2158	2158-2159	2159-2160	2160-2161	2161-2162	2162-2163	2163-2164	2164-2165	2165-2166	2166-2167	2167-2168	2168-2169	2169-2170	2170-2171	2171-2172	2172-2173	2173-2174	2174-2175	2175-2176	2176-2177	2177-2178	2178-2179	2179-2180	2180-2181	2181-2182	2182-2183	2183-2184	2184-2185	2185-2186	2186-2187	2187-2188	2188-2189	2189-2190	2190-2191	2191-2192	2192-2193	2193-2194	2194-2195	2195-2196	2196-2197	2197-2198	2198-2199	2199-2200	2200-2201	2201-2202	2202-2203	2203-2204	2204-2205	2205-2206	2206-2207	2207-2208	2208-2209	2209-2210	2210-2211	2211-2212	2212-2213	2213-2214	2214-2215	2215-2216	2216-2217	2217-2218	2218-2219	2219-2220	2220-2221	2221-2222	2222-2223	2223-2224	2224-2225	2225-2226	2226-2227	2227-2228	2228-2229	2229-2230	2230-2231	2231-2232	2232-2233	2233-2234	2234-2235	2235-2236	2236-2237	2237-2238	2238-2239	2239-2240	2240-2241	2241-2242	2242-2243	2243-2244	2244-2245	2245-2246	2246-2247	2247-2248	2248-2249	2249-2250	2250-2251	2251-2252	2252-2253	2253-2254	2254-2255	2255-2256	2256-2257	2257-2258	2258-2259	2259-2260	2260-2261	2261-2262	2262-2263	2263-2264	2264-2265	2265-2266	2266-2267	2267-2268	2268-2269	2269-2270	2270-2271	2271-2272	2272-2273	2273-2274	2274-2275	2275-2276	2276-2277	2277-2278	2278-2279	2279-2280	2280-2281	2281
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A1 cont.

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87.

A method of synthesizing a fusion protein comprising at least one pan DR peptide and an immunogenic peptide, native protein fragment or particle, the method comprising,

(a) selecting a vector comprising a polynucleotide encoding a fusion protein, the fusion protein comprising,

(i) an immunogenic peptide, a native protein fragment or a particle, and,

(ii) at least one pan DR binding peptide selected from the formula $R_1-R_2-R_3-R_4-R_5$, wherein:

R_1 is an amino acid followed by alanine or lysine;

R_2 is selected from the group consisting of tyrosine, or phenylalanine;

R_3 is 3 or 4 amino acids, wherein each amino acid is independently selected from the group consisting of alanine, isoleucine, serine, glutamic acid and valine;

R_4 is selected from the group consisting of threonine-leucine-lysine, lysine-threonine, or tryptophan-threonine-leucine-lysine; and,

R_5 consists of 2 to 4 amino acids followed by an amino acid wherein each of the 2 to 4 amino acids is independently selected from the group consisting of alanine, serine, and valine;

(b) transforming a host cell with the vector; and,

(c) expressing the fusion protein in the host cell.

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88.

The method of claim 86, wherein the fusion protein comprises multiple pan DR peptides.

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89.

The method of claim 87, wherein the fusion protein comprises a homopolymer of pan DR peptides.

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90.

The method of claim 87, wherein the fusion protein comprises a heteropolymer of pan DR peptides.

Rule 126
"4.6.2.6"

A' cont.

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95.

A fusion protein comprising,

(i) an immunogenic peptide, a native protein fragment or a particle,

and,

(ii) at least one pan DR binding peptide selected from the formula

$R_1-R_2-R_3-R_4-R_5$, wherein:

R_1 is an amino acid followed by alanine or lysine;

R_2 is selected from the group consisting of tyrosine, or phenylalanine;

R_3 is 3 or 4 amino acids, wherein each amino acid is independently selected from the group consisting of alanine, isoleucine, serine, glutamic acid and valine;

R_4 is selected from the group consisting of threonine-leucine-lysine, lysine-threonine, or tryptophan-threonine-leucine-lysine; and,

R_5 consists of 2 to 4 amino acids followed by an amino acid wherein each of the 2 to 4 amino acids is independently selected from the group consisting of alanine, serine, and valine.

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96.

The fusion protein of claim 95, wherein the fusion protein comprises multiple pan DR peptides.

37/
97.

The fusion protein of claim 95, wherein the fusion protein comprises a homopolymer of pan DR peptides.

38/
98.

The fusion protein of claim 95, wherein the fusion protein comprises a heteropolymer of pan DR peptides.

39/
99.

The fusion protein of claim 95, wherein the immunogenic peptide, native protein fragment or particle comprises a heteropolymer with repeating units.

40/
100.

The fusion protein of claim 95, wherein the immunogenic peptide, native protein fragment or particle comprises a T helper peptide.

41/
101.

The fusion protein of claim 95, wherein the immunogenic peptide, native protein fragment or particle comprises an antibody-inducing peptide.

Rule 126
35 U.S.C. 101

A' cont.

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102.

~~102.~~ The fusion protein of claim 95, wherein the immunogenic peptide, native protein fragment or particle comprises a CTL-inducing peptide.

[illegible]

A' cont.

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~~103.~~

103. A method of inducing an immune response in a human, the method comprising introducing of a composition of claim 78 into a human.

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~~104.~~

104. The method of claim 103, wherein the polynucleotide is comprised by an expression vector.

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105.

105. The method of claim 103, wherein the fusion protein comprises multiple pan DR peptides.

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~~106.~~

~~106.~~ The method of claim 103, wherein the fusion protein comprises a homopolymer of pan DR peptides.

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107

~~107.~~ The method of claim 103, wherein the fusion protein comprises a heteropolymer of pan DR peptides.

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108

~~108.~~ The method of claim 103, wherein the immunogenic peptide, native protein fragment or particle comprises a heteropolymer with repeating units.

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109. The method of claim 103, wherein the immunogenic peptide, native protein fragment or particle comprises a T helper peptide.

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~~110.~~ The method of claim 103, wherein the immunogenic peptide, native protein fragment or particle comprises an antibody-inducing peptide.

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141. The method of claim 103, wherein the immunogenic peptide, native protein fragment or particle comprises a CTL-inducing peptide.

Rule 126

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119. The method of claim 112, wherein the immunogenic peptide, native
ent or particle comprises a CTL-inducing peptide.

A' cont.

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~~120. A composition for eliciting an immune response to a T-cell and/or B-cell antigen, comprising multiple pan DR peptides linked to one or more T-cell and/or B-cell antigenic peptide, the composition comprising multiple pan DR peptides linked to one or more T-cell and/or B-cell antigenic peptide, and/or antibody-inducing peptide,~~

wherein the pan DR binding peptides are selected from the formula R₁-R₂-R₃-R₄-R₅, wherein:

R₁ is an amino acid followed by alanine or lysine;

R₂ is selected from the group consisting of tyrosine or phenylalanine;

R₃ is 3 or 4 amino acids, wherein each amino acid is independently selected from the group consisting of alanine, isoleucine, serine, glutamic acid and valine;

R₄ is selected from the group consisting of threonine-leucine-lysine, lysine-threonine, or tryptophan-threonine-leucine-lysine; and,

R₅ consists of 2 to 4 amino acids followed by an amino acid wherein each of the 2 to 4 amino acids is independently selected from the group consisting of alanine, serine, and valine.

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~~121.~~ The composition of claim 120, wherein the composition comprises OR peptides.

6362

~~122.~~ The composition of claim 120, wherein the composition comprises a
of pan DR peptides.

6463

~~123.~~ The composition of claim 120, wherein the composition comprises a
r of pan DR peptides.

6564

~~124.~~ The composition of claim 120, wherein the T-cell and/or antibody-
ide comprises a heteropolymer with repeating units.

6th 6th

~~125.~~ The composition of claim 120, wherein the T-cell and/or antibody-
ide comprises a T helper peptide.

Rule 126

THE